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Mental health inequalities among gay and bisexual men in England, Scotland and Wales: a large community-based cross-sectional survey

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ABSTRACT

Sexual minorities suffer worse mental health than the sexual majority but little is known about differences in mental health within sexual minorities. We aimed to describe inequality in mental health indicators among gay and bisexual men.

Using multi-channel community-based opportunistic sampling we recruited 5799 eligible men aged 16 years and over, living in England, Scotland and Wales and who were sexually attracted to other men, to a self-completion internet health survey. Mental health indicators (depression (PHQ-9), anxiety (GAD-7), suicide attempt and self-harm) were examined for independent associations across common axes of inequality (age, ethnicity, migrancy, education, income, cohabitation and living in London).

Mental ill-health was common: 21.3% were depressed and 17.1% anxious, while 3.0% had attempted suicide and 6.5% had self-harmed within the last 12 months. All four indicators were associated with younger age, lower education and lower income. Depression was also associated with being a member of visible ethnic minorities and sexual attraction to women as well as men. Cohabiting with a male partner and living in London were protective of mental health.

Community interventions to increase mental health among gay and bisexual men should be designed to disproportionately benefit younger men and those living on lower incomes.

KEY WORDS

mental health; social determinants; gender.

INTRODUCTION

Mental well-being is a central component of the World Health Organization's definition of health and poor mental health is a common source of human misery.¹ Mental health is a complex multi-faceted construct with affective, cognitive and behavioural components that are both inter- and intra-personal. Poor mental health is structurally patterned and group membership has been shown to increase the risk of poor mental health across a number of social axes.

In terms of sexuality, minorities are at higher risk of poor mental health than the heterosexual majority.^{2,3} For example, the 2007 UK Adult Psychiatric Morbidity Survey (APMS), using a nationally representative sample of private household residents, found much higher prevalence of depression, anxiety and suicide attempts among the non-heterosexual minority.⁴ Less data is available about mental health differences within sexual minorities. Minorities are routinely thought as more homogenous than they actually are (a phenomena known as the out-group homogeneity bias⁵). However, it is obvious that sexual minorities are diverse in terms of the characteristics across which the incidence of mental health problems are known to vary, such as gender⁶, age⁷, ethnicity⁸, relationship status⁹ and financial status¹⁰. This paper considers whether these mental health inequalities are replicated among sexual minority men.

Establishing the epidemiology of mental ill-health across sexuality groups is challenging predominantly due to sampling issues. Large representative samples of sexual minorities are theoretically possible but remain practically unfeasible. There is no sampling frame for sexual minorities and, as they form a small proportion of the population, even large representative general population surveys only recruit a small absolute number of people in sexual minorities. The majority of population health research with sexual minorities has therefore used convenience samples, both of the LGBT community as a whole and of its constituent parts.¹¹

We used a large, community recruited sample (n=5,799) of gay and bisexual men to describe variation in mental health indicators by key demographic criteria known to influence or mediate mental health.

METHODS

Data come from the Stonewall Gay & Bisexual Men's Health Survey, a community-recruited, anonymous, self-completed online survey commissioned and supported by Stonewall, a UK charity promoting the rights of lesbian, gay, bisexual and (since 2014) trans men and women. Eligibility for

the survey were: (1) identifying as a man; (2) identifying as gay or bisexual, and/or being sexually attracted to men, and/or having sex with men; (3) aged 16 years or over; and (4) living in England, Wales or Scotland. The sample was self-selected among people exposed to recruitment activities. No external incentive was offered. All participants completed the same set of questions.

Recruitment

In the absence of a sampling frame for gay and bisexual men we attempted to reduce bias through snowball sampling with multiple entry points into the population, drawing upon the communications networks of *Stonewall*. The survey was promoted to approximately 500 employers who were members of Stonewall's Diversity Champions programme, who between them employ approximately 5 million people across the public, private and third sectors in England, Scotland and Wales. Employers in turn promoted the survey to employees through intranets, and to their own networks of clients/customers/service-users via social media. A request to participate in and promote the survey was sent to Stonewall email lists of gay community leaders and professional networks. The survey was repeatedly promoted throughout the 6 month period via social media: Stonewall's *Facebook* page (approximately 20,000 friends) and *Twitter* account (approximately 10,000 followers). The offices of Stonewall Scotland and Stonewall Wales promoted the survey via social media (approximately 2,000 friends/followers between them). Several gay celebrities and businesses tweeted and posted links to their followers. The survey was promoted to Stonewall's education campaign contacts (approximately 2,000 people), including contacts at schools, universities and local authorities who in turn promoted to their contacts, networks and mailing lists. Finally, a small amount of paid advertising was undertaken for a period of four weeks on a gay community news and dating website (Gaydar.co.uk). Surveys could be submitted between April and October 2011. The final question asked "Have you filled in this survey already?" Affirmative cases were excluded.

Measures

Demographic and lifestyle variables were coded into discrete categories. Age was coded in four groups of approximate equal sized (16-25; 26-35; 36-45; >45). Ethnicity was coded as "white", "black", "Asian", and "other ethnicity". Migrant status was coded by whether or not respondents were born outside the UK. Education was coded in three groups: General Certificate of Education (GCSE) or less; post-GCSE qualifications but not degree; university degree. Personal income was

coded into five bands giving similar sized groups. Household captured cohabitees (alone; male partner; others but not male partner). We distinguished living in London versus living elsewhere in Great Britain. Men who were sexually attracted only to men were distinguished from those who were also attracted to women (either sometimes, equally or mostly).

We included four common measures of population health drawn from existing UK surveys. All outcomes were coded as binary variables. Depression was measured using the PHQ-9 (Patient Health Questionnaire 9), a nine-item severity measure scoring from 0 to 27.¹² Respondents were coded as 'not depressed' (minimal or mild depression, score 0-9) or 'depressed' (moderate, moderately severe or severe depression, score 10-27). Anxiety was measured using the Generalized Anxiety Disorder 7 (GAD-7), a seven-item severity measure scoring 0 to 21.¹³ Respondents were coded as 'not anxious' (no, minimal or mild anxiety, score 0 to 9) or 'anxious' (moderate or severe anxiety, score 9-21). Suicide attempt was measured by asking "In the last year, have you made an attempt to take your life?" with responses 'yes' and 'no'. Self-harm was measured by asking "In the last year, have you deliberately harmed yourself in any way but not with the intention of killing yourself?" with responses 'yes' and 'no'.

Model development

We first described missingness in the data, and used cross-tabulation and logistic regression to explore unadjusted trends between each demographic and lifestyle variable and the outcomes. Associations were described as odds ratios, with strength of association measured by effect size (p-value from a likelihood ratio test).

The associations under investigation were liable to confounding by multiple factors. When addressing multiple confounders simultaneously there is a risk of over-adjustment when some variables sit on the causal path between other variables and the outcome.¹⁴ It is plausible that adjusting for proximal factors will over fit a model for less proximal factors. In order to select appropriate potential confounders, and to make explicit our assumptions about the causal connections between the demographic variables, we drew a directed acyclical graph, or DAG¹⁵ (see Figure 1) using Dagitty software.¹⁶

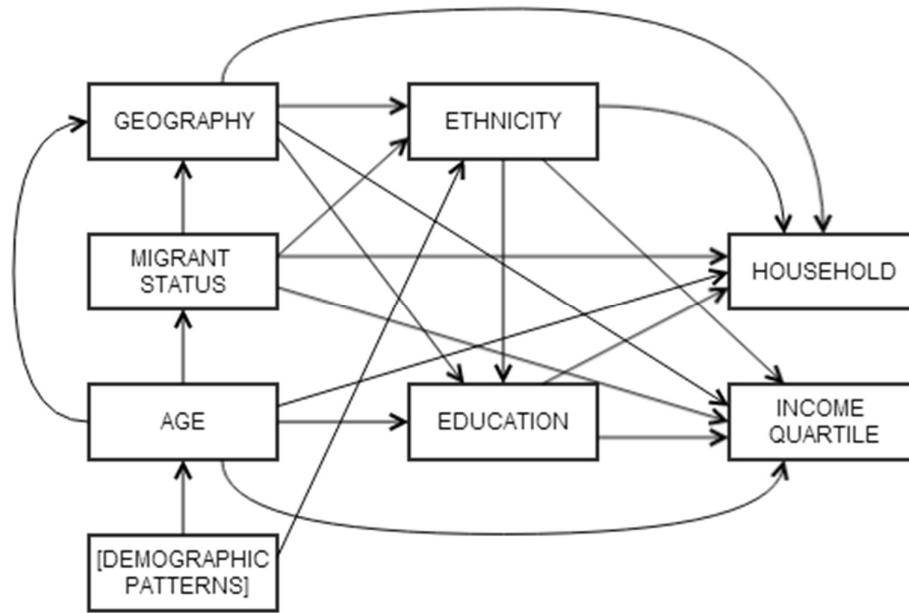


Figure 1: Assumptions of casual connections between demographic variables

The arrows represent assumed causal links. Education and migration status are both ‘past’ and therefore have been placed higher in the causal pathways; ethnicity is considered conditional on being in the study and therefore migrant status was assumed to be causally upstream. All of these variables are also thought to have a causal relationship with the outcomes, which is not shown in the diagram. We used the DAGITTY software (<http://www.dagitty.net/>) to identify minimal sufficient adjustment sets of potential confounders. These confounders were used in logistic regression. By identifying confounders in this way, as opposed to including potential confounders on the basis of association with the exposure of interest and the outcome, or simply including all other variables, we aimed to avoid over-fitting the model with variables on the causal pathway in the adjusted models.¹⁷ As a result, each of the associations between the variables and the outcomes was adjusted for by a different set of potential confounders.

RESULTS

After ineligibility exclusions, there were 5799 valid survey submissions. Of these, 383 were missing the depression measure, 243 missing anxiety, 60 missing suicide attempt and 48 missing self-harm. Age and residence were inclusion criteria and were missing no data. Missing data for ethnicity,

education, migrant status, income, household situation and attraction to women did not exceed 1.5% and did not appear to be differentiated by the outcome. The characteristics of the sample, the prevalence and odds of poor mental health and results of the logistic regression are displayed in Table 1.

The median age was 32 years and the majority (78%) were under 45 years of age, most were of white ethnicity (94%), and more than half had a degree-level education (58%). There was a small proportion of migrants (14%) and a broad distribution of incomes. Approximately equal numbers reported living alone, living with a male partner, or living with others (but not a male partner). Over a third lived in London. Overall 21.3% were depressed and 17.1% anxious. Far fewer had attempted suicide (3.0%) but a sizable minority (6.5%) had self-harmed in the last year.

All four negative outcomes became less likely with increasing age. The odds of men aged under 26 years suffering poor mental health were between 2 times (depression and anxiety) and 7 times (suicide attempt and self-harm) higher than for men aged 45 and over.

In the adjusted models, associations with ethnicity were adjusted by age, geography, and migrant status; education was adjusted by age, ethnicity, and living in London; income was adjusted by age, ethnicity, education, migrant status, and living in London; household was adjusted by age, ethnicity, education, migrant status, and living in London; migrant status was adjusted by age; and the associations with living in London were adjusted for age and migrant status.

Men with lower incomes, who were often younger, were more likely to be depressed, anxious, attempt suicide thoughts, or self-harm. Men in the lowest income bracket had between 2 and 3 times the odds of these outcomes relative to men in the highest bracket. Men with lower levels of education had approximately twice the odds of these outcomes relative to those with degree level education, and this was only moderately due to corresponding lower incomes.

Both Black and Asian men had higher odds of depression, and Black men also had higher odds of suicide attempt than the white majority. Migrants were less likely to report suicide attempt or self-harm.

Living with a male partner was associated with half the odds of depression, three quarters the odds of anxiety, a third the odds of suicide attempt, and two fifths the odds of self-harm relative to men living alone. Living with someone other than a male partner was not associated with protective effects.

Living in London was associated with lower odds of depression, suicide attempt and self-harm but this appears to be due to differences in income.

Sexual attraction to women as well as men was associated with higher odds of depression and of self-harm.

DISCUSSION

Main finding of this study

We carried out a large community-based survey of depression, anxiety, self-harm and suicide attempts among gay and bisexual men in England, Scotland and Wales. Mental health problems were relatively common and we identified significant and independent inequalities, particularly with regard to income, age and household. In addition to an overall mental health inequality between the sexual majority and sexual minorities, other common inequalities persist within sexual minorities.

What is already known on this topic

This is the first report of mental health differences within gay and bisexual men in the UK. Other studies have demonstrated that sexual minorities are at greater risk of poor mental health than sexual majorities.^{2,3,4} The dominant account for the population level association between sexual minority status and poor health outcomes is Meyer's minority stress theory.¹⁸ Meyer suggests that it is the daily experience of being oppressed that is detrimental to people's physical and mental well-being.

Much less is known about within group differences in mental health among gay and bisexual men. Associations with education, income and household have not been studied in this population.¹⁹ Meyer et al.'s 2004-5 data from LGBT people in the US suggested that anxiety and mood disorders were significantly more common among White LGBT people than Black LGBT people, and more common among older rather than younger cohorts.²⁰ This dual gender study was much smaller (n=388) than the current study.

What this study adds

While gay and bisexual men in all demographic groups experience poor mental health, other group memberships influence its likelihood and social gradients are not of equal size. In contrast to Meyer et al.'s study,²⁰ our data suggest young gay and bisexual men are significantly greater risk of poor mental health than older men on every indicator, with very high levels of depression (29%), anxiety (24%), suicide attempts (6%) and self-harm (14%). This finding is congruent with homophobic abuse and assault being very disproportionately experienced by the young.²¹ Age is fortunately the one characteristic on which LGBT services have been targeted and there is a network of social support

interventions for young LGBT people in the UK.²²⁹ Our data suggest these services are insufficient and that the mental health impact on LGBT young people should be considered in national policy decisions.

Higher education and higher income were independently associated with lower levels of mental health problems. These patterns reflect the importance of both literacy and material circumstances in determining mental states.²³ Conversely, men on lower incomes were at significantly higher risk in relation to every indicator of poor mental health, independently of age and education. To ensure this group are not failed by policy and practice, poverty discourse must include discussion of sexuality, and LGBT movements must attend to poverty.

Living with a male partner has a large protective effect on mental health. The same effect was not observed from living with other people. Marriage has been shown to confer health benefits, especially to men, through companionship and psycho-social support that provide a buffer to emotional distress and illness.²⁴ Our findings suggest that these benefits extend to co-habiting male couples. The finding that men who are attracted to women as well as men are at greater risk of poor mental health than are men attracted only to men reflect the same inequality found among sexual minority women, and reinforce the need for bisexual visibility in LGBT services.¹¹

Three possible non-exclusive explanations for the variations in mental health among gay and bisexual men suggest themselves. First, that homophobia is unequally experienced across the population of gay and bisexual men, being more prevalent in the lives of younger, poorer and/or less well-educated men, and those from minority ethnic groups (ie. different levels of homophobic discrimination result in mental health inequalities). Secondly, men are better able to resist the impact of homophobia if they are relatively privileged in other areas of their lives (ie. different levels of resilience to homophobia result in mental health inequalities).²⁵ Thirdly, that whatever the levels and effects of sexual minority stress, gay and bisexual men also experience discrimination or marginalisation other than that related to their sexuality (ie. different experiences of poverty, racism and other social hierarchies result in mental health inequalities among gay and bisexual men). Future research could investigate the relative contribution of these three potential processes.

Limitations of this study

Our findings are limited through the self-selecting nature of the sample and the imprecision involved in self-completion of short measures of mental health states. We were unable to measure response rate and the representativeness of the sample is unknown. Despite controlling for confounders, there will be residual confounding from unmeasured factors.

ACKNOWLEDGMENTS

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| | | Total | Col % | Depression (383 missing) | | | | Anxiety (243 missing) | | | |
|-------------------------|----------------------------|-------|-------|--------------------------|--------------------|---------|--------------------|-----------------------|--------------------|---------|--------------------|
| N | | 5799 | | 1155/5416 (21.3) | OR | p-value | aOR | p-value | aOR | p-value | |
| Age (years) | | | | | | | | | | | |
| | 16-25 | 1539 | 26.4 | 422/1445 (29.2) | 1.00 | | | 349/1475 (23.7) | 1.0 | | |
| | 26-35 | 1664 | 28.7 | 328/1574 (20.8) | 0.64 (0.54 - 0.75) | | | 266/1612 (16.5) | 0.64 (0.53 - 0.76) | | |
| | 36-45 | 1336 | 23.1 | 237/1239 (19.1) | 0.57 (0.48 - 0.69) | | | 201/1271 (15.8) | 0.61 (0.5 - 0.73) | | |
| | >45 | 1260 | 21.8 | 168/1158 (14.5) | 0.41 (0.34 - 0.5) | <0.001 | | 133/1198 (11.1) | 0.40 (0.32 - 0.50) | <0.001 | |
| Ethnicity | | | | | | | | | | | |
| | White background | 5476 | 94.6 | 1071/5128 (20.9) | 1.00 | | 1.00 | 884/5248 (16.8) | 1.00 | | 1.00 |
| | Black background | 52 | 0.9 | 15/48 (31.3) | 1.72 (0.93 - 3.18) | | 2.00 (1.07 - 3.74) | 11/49 (22.4) | 1.43 (0.73 - 2.81) | | 1.45 (0.73 - 2.88) |
| | Asian background | 93 | 1.6 | 28/85 (32.9) | 1.86 (1.18 - 2.94) | | 1.82 (1.14 - 2.9) | 18/91 (19.8) | 1.22 (0.72 - 2.05) | | 1.09 (0.64 - 1.85) |
| | Mixed & Other | 171 | 2.9 | 38/149 (25.5) | 1.30 (0.89 - 1.89) | 0.013 | 1.34 (0.91 - 1.97) | 34/161 (21.1) | 1.32 (0.9 - 1.94) | 0.343 | 1.27 (0.86 - 1.88) |
| Education | Missing | 7 | | | | | | | | | 0.489 |
| | No A-level | 946 | 16.4 | 258/877 (29.4) | 1.00 | | 1.00 | 205/904 (22.7) | 1.00 | | 1.00 |
| | A-level | 1457 | 25.2 | 353/1366 (25.8) | 0.84 (0.69 - 1.01) | | 0.76 (0.63 - 0.93) | 277/1403 (19.7) | 0.84 (0.68 - 1.03) | | 0.76 (0.61 - 0.93) |
| | Degree level | 3379 | 58.4 | 541/3160 (17.1) | 0.50 (0.42 - 0.59) | <0.001 | 0.51 (0.43 - 0.61) | 465/3236 (14.4) | 0.57 (0.48 - 0.69) | <0.001 | 0.58 (0.48 - 0.71) |
| | Missing | 17 | | | | | | | | | <0.001 |
| Migrant | | | | | | | | | | | |
| | No | 4963 | 86.4 | 1013/4636 (21.9) | 1.00 | | 1.00 | 811/4750 (17.1) | 1.00 | | 1.00 |
| | Yes | 779 | 13.6 | 132/726 (18.2) | 0.79 (0.65 - 0.97) | 0.023 | 0.85 (0.69 - 1.04) | 127/750 (16.9) | 0.99 (0.81 - 1.22) | 0.924 | 1.06 (0.86 - 1.31) |
| Income | Missing | 57 | | | | | | | | | 0.571 |
| | <10,400 | 1327 | 23.2 | 426/1244 (34.2) | 1.00 | | 1.00 | 334/1274 (26.2) | 1.00 | | 1.00 |
| | 10,400-18,199 | 924 | 16.2 | 216/868 (24.9) | 0.64 (0.52 - 0.77) | | 0.67 (0.54 - 0.82) | 171/888 (19.3) | 0.67 (0.54 - 0.83) | | 0.72 (0.58 - 0.90) |
| | 18,200-31,199 | 1525 | 26.7 | 258/1421 (18.2) | 0.43 (0.36 - 0.51) | | 0.46 (0.38 - 0.56) | 228/1464 (15.6) | 0.52 (0.43 - 0.63) | | 0.57 (0.46 - 0.70) |
| | 31,200-46,799 | 964 | 17 | 124/902 (13.7) | 0.31 (0.24 - 0.38) | | 0.36 (0.28 - 0.46) | 118/922 (12.8) | 0.41 (0.33 - 0.52) | | 0.48 (0.37 - 0.63) |
| | 46,800+ | 968 | 17 | 106/903 (11.7) | 0.26 (0.2 - 0.32) | <0.001 | 0.33 (0.25 - 0.43) | 76/926 (8.2) | 0.25 (0.19 - 0.33) | <0.001 | 0.31 (0.23 - 0.42) |
| Household situation | Missing | 91 | | | | | | | | | <0.001 |
| | Live alone | 1448 | 25.1 | 318/1344 (23.7) | 1.00 | | 1.00 | 238/1392 (17.1) | 1.00 | | 1.00 |
| | Cohabits, male partner | 2068 | 35.8 | 268/1924 (13.9) | 0.52 (0.44 - 0.63) | | 0.52 (0.43 - 0.62) | 262/1974 (13.3) | 0.74 (0.61 - 0.9) | | 0.74 (0.61 - 0.90) |
| | Cohabits, not male partner | 2263 | 39.1 | 568/2130 (26.7) | 1.17 (1 - 1.37) | <0.001 | 0.87 (0.73 - 1.05) | 446/2170 (20.6) | 1.25 (1.05 - 1.49) | <0.001 | 0.91 (0.75 - 1.12) |
| Lives in London | Missing | 20 | | | | | | | | | 0.005 |
| | No | 3796 | 65.5 | 828/3547 (23.3) | 1.00 | | 1.00 | 660/3639 (18.1) | 1.00 | | 1.00 |
| Also attracted to women | Yes | 2003 | 34.5 | 327/1869 (17.5) | 0.70 (0.6 - 0.8) | <0.001 | 0.76 (0.66 - 0.89) | 289/1917 (15.1) | 0.8 (0.69 - 0.93) | 0.004 | 0.86 (0.74 - 1.01) |
| | No | 4,701 | 81.2 | 889/4379 (20.3) | 1.00 | | 1.00 | 739/4523 (16.3) | 1.00 | | 1.00 |
| | Yes | 1088 | 18.8 | 266/1028 (25.9) | 1.37 (1.17 - 1.6) | <0.001 | 1.21 (1.03 - 1.44) | 209/1023 (20.4) | 1.31 (1.11 - 1.56) | 0.002 | 1.16 (0.96 - 1.38) |
| Also attracted to women | Missing | 10 | 0.17 | | | | | | | | 0.119 |

Table 1: Stonewall Gay & Bisexual Men's Health Survey: Sample characteristics, prevalence of poor mental health and the odds of their occurrence.

| | | Suicide attempt (60 missing) | | | | Self harm (48 missing) | | | | | |
|-------------------------|----------------------------|------------------------------|--------------------|---------|---------------------|------------------------|-----------------|--------------------|---------|--------------------|---------|
| | | N (%) | OR | p-value | aOR | p-value | | | | | |
| Total sample | | 171/5739 (3.0%) | -- | -- | | | 375/5751 (6.5%) | OR | p-value | aOR | p-value |
| Age category | | | | | | | | | | | |
| | 16-25 | 90/1521 (5.9) | 1.00 | | | | 210/1524 (13.8) | 1.00 | | | |
| | 26-35 | 38/1653 (2.3) | 0.37 (0.25 - 0.55) | | | | 77/1655 (4.7) | 0.31 (0.23 - 0.40) | | | |
| | 36-45 | 31/1321 (2.3) | 0.38 (0.25 - 0.58) | | | | 57/1321 (4.3) | 0.28 (0.21 - 0.38) | | | |
| | >45 | 12/1244 (1.0) | 0.15 (0.08 - 0.28) | <0.001 | | | 31/1251 (2.5) | 0.16 (0.11 - 0.23) | <0.001 | | |
| Ethnicity | | | | | | | | | | | |
| | White background | 153/5419 (2.8) | 1.00 | | 1.00 | | 350/5430 (6.4) | 1.00 | | 1.00 | |
| | Black background | 5/52 (9.6) | 3.66 (1.44 - 9.33) | | 4.97 (1.88 - 13.19) | | 6/51 (11.8) | 1.94 (0.82 - 4.57) | | 2.30 (0.94 - 5.61) | |
| | Asian background | 2/93 (2.2) | 0.76 (0.18 - 3.10) | | 0.76 (0.18 - 3.14) | | 5/93 (5.4) | 0.82 (0.33 - 2.04) | | 0.79 (0.31 - 1.99) | |
| | Mixed & Other | 11/168 (6.5) | 2.41 (1.28 - 4.54) | 0.01 | 2.55 (1.33 - 4.89) | 0.004 | 14/170 (8.2) | 1.30 (0.75 - 2.27) | 0.406 | 1.29 (0.73 - 2.29) | 0.291 |
| Education | | | | | | | | | | | |
| | No A-level | 54/930 (5.8) | 1.00 | | 1.00 | | 98/938 (10.4) | 1.00 | | 1.00 | |
| | A-level | 62/1448 (4.3) | 0.73 (0.5 - 1.06) | | 0.61 (0.42 - 0.90) | | 142/1448 (9.8) | 0.93 (0.71 - 1.22) | | 0.76 (0.58 - 1.01) | |
| | Degree level | 55/3348 (1.6) | 0.27 (0.18 - 0.4) | <0.001 | 0.31 (0.21 - 0.46) | <0.001 | 135/3352 (4) | 0.36 (0.27 - 0.47) | <0.001 | 0.41 (0.31 - 0.54) | <0.001 |
| Migrant | | | | | | | | | | | |
| | No | 158/4909 (3.2) | 1.00 | | 1.00 | | 346/4921 (7.0) | 1.00 | | 1.00 | |
| | Yes | 12/774 (1.6) | 0.47 (0.26 - 0.86) | 0.006 | 0.56 (0.31 - 1.01) | 0.037 | 25/774 (3.2) | 0.44 (0.29 - 0.67) | <0.001 | 0.53 (0.35 - 0.81) | 0.001 |
| Income | | | | | | | | | | | |
| | <10,400 | 88/1307 (6.7) | 1.00 | | 1.00 | | 201/1317 (15.3) | 1.00 | | 1.00 | |
| | 10,400-18,199 | 29/920 (3.2) | 0.45 (0.29 - 0.69) | | 0.56 (0.36 - 0.89) | | 72/917 (7.9) | 0.47 (0.36 - 0.63) | | 0.6 (0.45 - 0.81) | |
| | 18,200-31,199 | 28/1507 (1.9) | 0.26 (0.17 - 0.40) | | 0.39 (0.24 - 0.63) | | 52/1512 (3.4) | 0.20 (0.14 - 0.27) | | 0.28 (0.2 - 0.4) | |
| | 31,200-46,799 | 9/959 (0.9) | 0.13 (0.07 - 0.26) | | 0.24 (0.11 - 0.51) | | 21/961 (2.2) | 0.12 (0.08 - 0.2) | | 0.22 (0.13 - 0.36) | |
| | 46,800+ | 12/960 (1.3) | 0.18 (0.10 - 0.32) | <0.001 | 0.37 (0.19 - 0.74) | <0.001 | 20/958 (2.1) | 0.12 (0.07 - 0.19) | <0.001 | 0.23 (0.14 - 0.39) | <0.001 |
| Household situation | | | | | | | | | | | |
| | Live alone | 50/1429 (3.5) | 1.00 | | 1.00 | | 92/1438 (6.4) | 1.00 | | 1.00 | |
| | Cohabits, male partner | 20/2050 (1) | 0.27 (0.16 - 0.46) | | 0.27 (0.16 - 0.46) | | 54/2047 (2.6) | 0.40 (0.28 - 0.56) | | 0.39 (0.27 - 0.55) | |
| | Cohabits, not male partner | 101/2240 (4.5) | 1.30 (0.92 - 1.84) | <0.001 | 0.67 (0.45 - 1.02) | <0.001 | 227/2246 (10.1) | 1.64 (1.28 - 2.12) | <0.001 | 0.80 (0.59 - 1.08) | <0.001 |
| Lives in London | | | | | | | | | | | |
| | No | 136/3755 (3.6) | 1.00 | | 1.00 | | 287/3769 (7.6) | 1.00 | | 1.00 | |
| | Yes | 35/1984 (1.8) | 0.48 (0.33 - 0.7) | <0.001 | 0.62 (0.42 - 0.91) | 0.012 | 88/1982 (4.4) | 0.56 (0.44 - 0.72) | <0.001 | 0.78 (0.6 - 1.0) | 0.05 |
| Also attracted to women | | | | | | | | | | | |
| | No | 126/4654 (2.7) | 1.00 | | 1.00 | | 255/4663 (5.5) | 1.00 | | 1.00 | |
| | Yes | 45/1076 (4.2) | 1.57 (1.11 - 2.22) | 0.014 | 1.14 (0.78 - 1.64) | 0.502 | 118/1078 (10.9) | 2.12 (1.69 - 2.67) | <0.001 | 1.71 (1.34 - 2.19) | <0.001 |

Table 1 (cont): Stonewall Gay & Bisexual Men's Health Survey: Sample characteristics, prevalence of poor mental health and the odds of their occurrence.

In the adjusted models, associations with ethnicity were adjusted by age, geography, and migrant status; education was adjusted by age, ethnicity, and living in London; income was adjusted by age, ethnicity, education, migrant status, and living in London; household was adjusted by age, ethnicity, education, migrant status, and living in

London; migrant status was adjusted by age; living in London was adjusted by age and migrant status; and being attracted to women was adjusted by age, ethnicity, education, migrant status, living in London, and income.

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